Improving Learning Object Quality: Moodle HEODAR Implementation

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ABSTRACT

Automation toward efficiency is the aim of most intelligent systems in an educational context in which results calculation automation that allows experts to spend most of their time on important tasks, not on retrieving, ordering, and interpreting information. In this paper, the authors provide a tool that easily evaluates Learning Objects quality by students and teachers and calculate a set of relevant information which main objective is to improve the contents. The job focuses on the definition, implementation, and installation of a Learning Object evaluation tool in a LMS environment. Firstly other similar tools are analyzed and the best theoretical evaluation method to be used in the tool is selected. In this case, an evaluation model called HEODAR (Herramienta de Evaluación de Objetos de Aprendizaje) is implemented. Finally, the produced tool is installed in Studium, the University of Salamanca official campus, based on Moodle. Test results are populated to clarify and confirm the consecution of tool implementation objectives, facing a new approach for the tool including intelligent capabilities to improve tool characteristics.

Keywords: Activity, Agent, Automation, eLearning, Evaluation, Java Agent Development Framework (JADE), Moodle, Quality, Shareable Content Object Reference Model (SCORM), Test

INTRODUCTION

The processes automation that supports the work of experts in certain subjects, or even allows its release and dedication to other tasks, is a constant that has been occurring on an ongoing basis in different spectrum of our society. This automation has already reached the level of education, encompassing all its modalities and many of its processes (empty classroom
control, students attendance, rating records and so forth) covering targets like Web content evaluation (Marquès, 2010) and multimedia evaluation (Gibbs, Graves, & Bermas, 2001), which confirm the conclusion that eLearning is not out of reach.

The main objective of this tendency is simply to allow experts to focus on the tasks associated with improvement and innovation, avoiding tangential or not directly related with their primary aims tasks, but necessary for the evolution and continuity of their work, such as the calculation of results, comparisons, analysis and other similar tasks.

More precisely, the job presented in this article focuses on the study of the current state of the processes associated with the Learning Objects quality evaluation. It also must be considered the implementation of tools which allow these processes automation and extract the advantages, previously mentioned, applied to online learning field.

Thus, the evaluation can be considered as the last step of a quality Learning Objects management process (Morales, García, Barrón, Berlanga, & López, 2005; Morales, García, Rego, & Moreira, 2009), being identified as a cyclical process in which periodic content evaluation by students and experts, reverses in a continuous improvement of Learning Objects stored in appropriate repositories. Currently, there exist certain proposals for LO quality evaluation that consider an instructional design (Cisco, 2003; Hamel & Ryan-Jones, 2002; Moreno & Bailly-Baillière, 2002; Williams, 2000) and its sequence (Zapata, 2006), but the work presented in this article basis on the characteristics of HEODAR model (Morales, 2008) because it merges several evaluation items and it is one of the most actual and complete evaluation models.

The reasons for this study are supported from the relevance that Learning Objects are acquiring as portable minimum information units between Learning Management Systems (LMS). There should be methods to evaluate the efficiency and pedagogical quality of these objects in order to be reused in many different contexts and platforms (LMS). If an object has reached an optimal adaptation level for a learning activity it should be used in such activities and not others that may provide a more tangential value. The only way to determine these Learning Objects characteristics is through the quality evaluation provided for the students and exploiting real experiences in a platform or a set of platforms.

Obviously, these processes evaluation enhancement, using software tools that automates the entire process or part of it, will represent a clear advantage which will make possible to focus the effort on the main objective: to improve the content, and not on the extraction of evaluations results.

Throughout this paper it will be discussed how the evaluation tool is implemented. Firstly it will be considered the Learning Objects evaluation evolution and also the evolution of existing software tools to perform this work. After that it will be described the tool planning and analysis steps. Then the implantation of the tool on Studium, the LMS at the University of Salamanca, will be described. Finally it will be talked about following stages in tool development, ending with a list of conclusions.

**MEASURING LEARNING OBJECTS**

The evaluation task of any entity, component, object or concept has been occurring over time. However, the definition spirit of that term, has been maintaining during that time, as long as it is a technique used to enhance and improve of any of them.

In an eLearning scope, there are many factors that can be evaluated: tutors, students, platforms, documents and so on. Of course, since Learning Objects emergence, these can be added to the list, as a feasible element to be improved, analyzing the results obtained by the application of appropriate evaluation techniques.
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